

Amendment and Response

Applicant: Kenneth M. Adams et al.

Serial No.: 10/657,915

Filed: September 9, 2003

Docket No.: M190.145.101 / P-263.00 US

Title: SURGICAL MICRO-BURRING INSTRUMENT AND METHOD OF PERFORMING SINUS SURGERY

IN THE CLAIMS

Please cancel claims 14 and 30.

Please add claims 35 and 36.

Please amend claims 1, 2, 9, 10, 13, 17, and 33 as follows:

- 1.(Currently Amended) A surgical micro-burring instrument comprising:
- an outer tubular member having a proximal section, an intermediate section, a distal section, and a central lumen extending from the proximal section to the distal section, the distal section forming:
- a pocket fluidly connected to the central lumen, the pocket having a bottom surface and an opposed upper opening;
- an elevator tip extending distal the pocket; and,
- a proximal portion proximal the pocket, the proximal portion forming a tube, wherein the pocket is defined by a side wall having an upper edge including a proximal zone extending from the proximal portion, an intermediate zone extending from the proximal zone, and a distal zone extending from the intermediate zone to a distal-most end of the pocket at which the central lumen terminates,
- and further wherein relative to an orientation of the outer tubular member in which the bottom surface is the lowest-most surface of the pocket:
- the proximal zone extends downwardly from the proximal portion toward the bottom surface,
- the intermediate zone extends from the proximal zone at an angle of extension relative to the proximal zone that differs from an angle of extension of the proximal zone relative to the proximal portion,
- the distal zone extends downwardly from the intermediate zone toward the bottom surface at an angle of extension differing from the angle of

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extension of the intermediate zone relative to the proximal zone;

and

an inner tubular member rotatably received within the central lumen, a distal end of the inner tubular member forming a bur positioned within the pocket, such that upon final assembly, at least a portion of the bur is exposed relative to the outer tubular member via the upper opening of the pocket.

2.(Currently Amended) The instrument of claim 1, ~~wherein the pocket terminates at a distal-most end, and further~~ wherein the elevator tip distally extends at least 0.05 inch relative to the distal-most end of the pocket.

3.(Original) The instrument of claim 2, wherein the elevator tip includes an upper surface extending from the distal-most end of the pocket, the upper surface including a proximal region and a distal region, wherein at least a portion of the distal region extends from the proximal region in an angular fashion in longitudinal cross-section.

4.(Original) The instrument of claim 3, wherein the angular extension of the distal region defines an included angle in the range of 10° – 50° relative to a central axis of the outer tubular member.

5.(Original) The instrument of claim 4, wherein the included angle is approximately 20°.

6.(Original) The instrument of claim 4, wherein the included angle is approximately 40°.

7.(Previously Presented) The instrument of claim 3, wherein at least a portion of the proximal region of the upper surface of the elevator tip extends downwardly from the distal-most end of the pocket.

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8.(Original) The instrument of claim 7, wherein the proximal region is curved in longitudinal cross-section.

9.(Currently Amended) The instrument of claim 1, wherein the elevator tip terminates in a distal end point, and further wherein the distal end point is laterally above a the distal-most end of the pocket when the outer tubular member is oriented such that the bottom surface of the pocket is below the upper opening.

10.(Currently Amended) The instrument of claim 1, wherein the ~~distal section further includes a proximal portion proximal the pocket, the proximal portion forming a tube, and further wherein the pocket is defined by a side wall having an upper edge including a proximal zone extending~~ extends from the proximal portion in an angularly downward fashion.

11.(Original) The instrument of claim 10, wherein angular extension of the proximal zone defines an included angle in the range of 100°– 140° relative to a central axis of the proximal portion.

12.(Original) The instrument of claim 11, wherein the included angle is approximately 120°.

13.(Currently Amended) The instrument of ~~claim 10~~ claim 1, wherein the ~~upper edge further includes an intermediate zone extending from the proximal zone~~ is parallel with a central axis of the proximal portion.

14.(Canceled)

15.(Previously Presented) The instrument of claim 1, wherein the bottom surface forms at least one opening fluidly connected to an irrigation source.

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16.(Original) The instrument of claim 15, further comprising:

an irrigation tube extending exteriorly along the outer tubular member and fluidly connected to the at least one opening.

17.(Currently Amended) The instrument of claim 1, wherein ~~the pocket is further terminates at a distal-most end point, and further wherein~~ upon final assembly, a distal end of the bur is longitudinally spaced from the distal-most end point.

18.(Original) The instrument of claim 1, further comprising:

an aspiration passage extending through the outer tubular member for aspirating cut tissue.

19.(Original) The instrument of claim 18, wherein the inner tubular member forms a lumen defining the aspiration passage with the bur forming an opening at a distal end thereof, and further wherein the opening is in fluid communication with the lumen of the inner tubular member.

20.(Original) The instrument of claim 1, wherein the intermediate section of the outer tubular member defines a longitudinal bend.

21.(Original) The instrument of claim 20, wherein the longitudinal bend is approximately 12° relative to a central axis defined by the proximal section.

22.(Original) The instrument of claim 1, wherein the instrument is adapted for use in a septoplasty procedure.

23.(Original) The instrument of claim 1, wherein the elevator tip is selectively axially moveable relative to the bur.

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24.(Original) The instrument of claim 23, further comprising:

an intermediate tubular member co-axially disposed between the inner tubular member and the outer tubular member, the intermediate tubular member forming a distal window through which at least a portion of the bur is exposed;
wherein the outer tubular member is slidably received over the intermediate tubular member.

25. – 29.(Canceled)

30.(Canceled)

31.(Previously Presented) The instrument of claim 1, wherein the bur forms a plurality of cutting flutes.

32.(Previously Presented) The instrument of claim 1, wherein the bur has a shape selected from the group consisting of cylindrical, spherical, hemispherical, ellipsoidal, and pear.

33.(Currently Amended) The instrument of claim 1, wherein the ~~distal section further includes a proximal portion proximal the pocket, the proximal portion forming a tube, and further wherein the pocket is defined by a side wall having an upper edge including a proximal zone extending from the proximal portion to a distal-most end of the pocket opposite the proximal portion and at which the central lumen terminates, and further wherein the distal-most end is below a central axis of the central lumen when the outer tubular member is spatially oriented such that the bottom surface is a lowest-most surface of the pocket.~~

34.(Previously Presented) The instrument of claim 1, wherein the bottom surface forms a plurality of ports opposite the upper opening.

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35.(New) The instrument of claim 19, wherein the distal end opening formed by the bur is in an axial opening, and further wherein the upper edge is shaped such that when the bur is in a distal-most position relative to the distal-most end of the pocket, the opening is unobstructed by the outer tubular member.

36.(New) The instrument of claim 1, wherein the bur is configured to remove hard bone with rotation of the inner tubular member.